DII.3051.HP1020_SOL251.TadAB_SVD_1.0

Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Software Version Description (SVD) for TADIL-A/B Interface Version 3.0.5.1

Document Version 1.0

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1. Scope

1.1 Identification

This SVD documents TADIL-A/B Version 3.0.5.1.

TADIL-A/B is hosted on the following platforms:

- Hardware: Tactical Advanced Computer, TAC-3 (HP750/755)/TAC-4 (J210)
  Operating System: HP-UX 10.20
  DII COE Kernel: 3.0.1.0 (with patches P1, P2, P3, and P4)

- Hardware: Sparc 10/20
  Operating System: Solaris 2.5.1
  DII COE Kernel: 3.0.0.3 (with patches P2, P3 (for Ultra Sparc *only*), P4, P5, and P6)

1.2 System Overview

The TADIL-A/B software is bundled as one software segment and multiple data segments. The *TADIL-A/B Interface* software segment contains all TADIL-A/B executables and Chart menu items, but only the passive (receive-only) implementation table. The *TADIL-A/B Table* data segments contain an active (two-way) table for one of the following transmit-capable implementations: U.S. Coast Guard, U.S. Marine Corps, Submarine, and TSC/MOCC. Until one of the data segments is installed, only passive channels can be run.

The TADIL-A/B software adds the following to the DII COE system:

- *TADIL-A-PEDO* - Passive EDO serial interface
- *TADIL-A-PIH* - Passive Indian Head serial interface
- *TADIL-AB* - TADIL-A/B interface
- *MX512P* - Serial interface to control the MX-512P/AN/USQ-125 data terminal set
- *POFA* – Program that perform Programmed Operational Functional Appraisal
- *NTDSDIAG* - NTDS diagnostics program

The TADIL-A-PEDO and TADIL-A-PIH interfaces tap into existing Tactical Data Systems (TDS), receiving all data transmitted and received by the TDS to the DII COE track management system without affecting the TDS. These serial channels receive and display all track types defined in the M-Series specification MIL-STD-6011. The operator can view detailed attributes of all received tracks. These tracks can be converted to the OTH-Gold-type message standard for transmission to other non-TDS systems. Tracks can be filtered by category.

The TADIL-AB interface provides a two-way transmit and receive capability for TADIL-A and TADIL-B.

TADIL-A is a half-duplex, netted, digital data link used to exchange tactical information among

Participating Units (PU). Messages are exchanged on the TADIL-A network using M-series messages as defined in the Tactical Digital Information Link (TADIL) A/B Message Standard, MIL-STD-6011

Running TADIL-A, the DII COE machine serves as a TDS. It interfaces to the Data Terminal Set (DTS) through an NTDS parallel connection. The DTS controls the TADIL-A communications link and issues commands to the TDS to Prepare to Receive (PTR) and Prepare to Transmit (PTT) in accordance with the *Interoperability and Performance Standards for Tactical Digital Information Link (TADIL) A*, MIL-STD-188-203-1A.

TADIL-B is a full-duplex, serial, point-to-point link in accordance with the *Subsystem Design and Engineering Standards for Tactical Digital Information Link (TADIL) B*, MIL-STD-188-212. It uses M-series messages for the exchange of tactical information among Reporting Units (RU) as defined in MIL-STD-6011. The TADIL-B segment supports data rates of 1200 and 2400 baud, and up to 8 connections simultaneously.

The *TADIL-A/B Interface* software segment provides complete control of the Link. The operator can:

- add tracks
- view detailed attributes of received tracks
- perform identification conflict resolution
- establish gridlock position
- send and read plain text messages
- monitor link performance
- send and read command messages and engagement messages
- set own unit's weapon status and read other units' weapon status
- set and read TADIL alerts (i.e. emergency or force-tell status)
- forward reports and messages between TADIL-A and/or TADIL-B connections
- request updates of data from other units that are participating in the network
- send current DLRP position and accept new DLRP positions from other units on the net
- receive and display ASW Summary reports.

The MX512P interface allows the operator to control the data terminal set from the DII COE system console. This program connects to the MX-512P/AN/USQ-125 TADIL-A data terminal set through a serial interface. The graphical user interface displayed on the console allows the operator to control all features of the data terminal set, including TADIL-A own unit setup, network setup, start and stop polling, and link monitoring.

POFA is a diagnostic program used to validate and debug two-way TADIL-A installations. Using this channel, the operator can exercise the entire TADIL-A hardware suite, from the radio through the DTS, the cryptographic unit, and the TDS (DII COE system). It can help diagnose problems in installation and periodic maintenance.

The NTDSDIAG interface allows the operator to run loop-back and other tests to verify that the TDS NTDS board, cables and driver are properly installed.

1.3 Product Information

Product Qualification

Test and evaluation (T&E) of the passive tap interfaces were performed at the INRI San Diego facility prior to delivery of the software. NCTSI tested TSC.

Product Restrictions

INRI's intellectual property rights to deliverables defined in this document are covered by the copyright license under the clause in DFARS 252.227-7013 (Nov 1995).

Product Dependencies

The following needs to be installed prior to installing the TADIL-A/B software:

- Appropriate Operating System
- DII COE Kernel
- Appropriate DII COE Account Group

The following Solaris drivers are required by the TADIL-AB, NTDSDIAG and POFA interfaces:

- Solaris 2.5.1 NTDS S-Bus Driver, Version 4.1b, GET Engineering
- Solaris 2.5.1 NTDS TADIL-B S-Bus Driver, Version 1.10, RSI Engineering

The following HP-UX drivers are required by the TADIL-AB, NTDSDIAG and POFA channels:

- HP-UX 10.20 NTDS EISA-Bus Driver, Version 3.4d, GET Engineering

2. Referenced Documents

The following documents are referenced elsewhere in this SVD.

2.1 Government Documents

a. *Tactical Digital Information Link (TADIL) A/B Message Standard*, MIL-STD-6011, 29 September 1995
b. *Interoperability and Performance Standards for Tactical Digital Information Link (TADIL) A*, MIL-STD-188-203-1A, 8 January 1988
c. *Subsystem Design and Engineering Standards for Tactical Digital Information Link (TADIL) B*, MIL-STD-188-212, 17 October 1992

2.2 Non-government Documents

None.

3. Version Description

3.1 Inventory of materials released

Magnetic media:

The following unclassified tapes are included in the delivery.

- TADIL-A/B Version 3.0.5.1 Segment on a 4mm DAT cartridge, intended for TAC-3/TAC-4 hardware environment. This segment can be run on DII COE Kernel Version 3.0.1.0 (with patches P1 ,P2, P3, and P4) supporting HP-UX 10.20 Operating System.

- TADIL-A/B Version 3.0.5.1 Segment on an 8mm EXABYTE cartridge, intended for Sparc 10/20 hardware environment. This segment can be run on DII COE Kernel Version 3.0.0.3 (with patches P2, P3 (Ultra Sparc *only*), P4, P5 and P6) supporting Solaris Operating System Version 2.5.1.

Documents:

For each document listed below, two laser originals and a disk containing a Word Perfect 6.x file accompany the delivery:

- *Installation Procedures (IP) for TADIL-A/B Version 3.0.5.1*, DII.3051.HP1020_SOL251.TadAB_IP_1.0, 15 October 1997.

- *Software User's Manual (SUM) for TADIL-A/B Interface Version 3.0.5.1*, TadAB3.0.5.1:SUM2.1, 15 October 1997.

- *Software Version Description (SVD) for TADIL-A/B Version 3.0.5.1*, DII.3051.HP1020_SOL251.TadAB_SVD_1.0, 15 October 1997.

3.2 Inventory of Software Contents

A listing of all computer libraries and files for TADIL-A/B Version 3.0.5.1 is located in Appendix B.

3.3 Changes Installed

A listing of all changes incorporated into the software since Link-11 Version 3.0.4.2 (delivered with UB 3.0.2.5 P1) is located in Appendix A.

3.4 Waivers

None.

3.5 Adaptation Data

None.

3.6 Installation Instructions

Installation instructions are located in:

- *Installation Procedures (IP) for TADIL-A/B Version 3.0.5.1*, DII.3051.HP1020_SOL251.TadAB_IP_1.0, 15 October 1997.

The following configuration is recommended:

- RAM: 128 MB minimum; 192 optimum
- Disk space: 2 GB
- Swap Space: 300 MB

The following TADIL-A and TADIL-B hardware is required:

- GET 10048301 NTDS S-Bus parallel interface adapter
- RSI S-Bus TADIL-B/Link-1 card

3.7 Possible Problems and Known Errors

A listing of all problems and known errors for TADIL-A/B Version 3.0.5.1 is located in Appendix C.

4. Notes

4.1 Acronyms

C4I	Command, Control, Communications, Computers, and Intelligence
COE	Common Operating Environment
DAT	Digital Audio Tape
DII	Defense Information Infrastructure
DFARS	Defense Federal Acquisition Regulation Supplement
DTS	Data Terminal Set
GB	Gigabyte
HP-UX	Hewlett-Packard UNIX-based Operating System
INRI	Inter-National Research Institute, Inc.
IP	Installation Procedures
JMTK	Joint Mapping Tool Kit
MB	Megabyte

NTDS	Navy Tactical Data System
POFA	Programmed Operational Functional Appraisal
PU	Participating Unit
RAM	Random Access Memory
RU	Reporting Unit
SUM	Software User's Manual
SVD	Software Version Description
TAC-3/TAC-4	Tactical Advanced Computer, Version 3/4
TADIL	Tactical Digital Information Link
TDS	Tactical Data System
UB	Unified Build

Appendix A: Changes Installed

The following software trouble reports (STRs) and software change proposals (SCPs) have been implemented in TADIL-A/B Version 3.0.5.1. They represent changes since Version 3.0.4.2.

Priority 1

None.

Priority 2

GSPR Number: None

INRI Number: TDL00001107

Short Description:
AIR TRACK - SCALE INDICATOR RECOMPILATION REQUIRED

Long Description:
DURING JITC TEST, DISCOVERED THAT HIGH VELOCITY AIR TRACKS NEAR THE DLRP AT CARDINAL HEADINGS HAVE PROBLEMS. APPEARS THAT ONCE THE SI BIT IS SET FOR L/L, THE HEADING (IF CARDINAL) ARE 180 DEGREES OFF & ALTITUDE IS LIMITED TO SI = 0. EXAMPLE: DLRP = 3045N/03350E, OWN UNIT = 2917N/03210E, AIR TN @ 3115N/03350E, VEL = 045/300 HEIGHT = 20000. AIR TN @ 304456N/0341926E, VEL = 180/450 HEIGHT = 125000.

Action:
Functionality implemented

PRI: 2

Priority 3

GSPR Number: None

INRI Number: TDL00001209

Short Description:
ASW SUMMARY - NEED DELETE OPTION

Long Description:
THE ASW SUMMARY WINDOW NEEDS A DELETE FEATURE BECAUSE CURRENTLY, THE ONLY WAY TO CLEAN THE ASW SUMMARY DIRECTORY IS TO BRING THE LINK DOWN.

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001230

Short Description:
IMPLEMENT TADIL-B INTERFACE

Long Description:
ADD PHYSICAL INTERFACE TO SUPPORT RSI TADIL-B BOARD.

Action:
Functionality implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001311

Short Description:
INCORPORATE MOTIF LABELED FRAME WIDGET

Long Description:
None

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001319

Short Description:
PROBLEM XMIT NEW TRACK WITH NO VALID LAT/LONG

Long Description:
THE TRACKS WINDOW DIES IF YOU CREATE A NEW TRACK AND SELECT XMIT WITHOUT SPECIFYING A VALID LAT/LONG.

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001320

Short Description:
XMIT STATUS IS CLEARED UPON CHANNEL START-UP

Long Description:
DON'T CHANGE XMIT BIT UPON START-UP FOR TRACKS XMITTED WHILE OFF-LINE.

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001321

Short Description:
OPTIMIZE LINK11-TRACKS

Long Description:
LINK11-TRACKS TAKES UP TOO MUCH SCREEN REAL ESTATE AND IS SLOW. IMPLEMENT TAB WINDOW FORMAT TO IMPROVE DISPLAY SIZE AND SPEED.

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001322

Short Description:
OPTIMIZE XMIT SHM ACCESS

Long Description:
CHANGE ACCESS TO XMIT SHARED MEMORY BY IMPLEMENTING A CTSX LOOK-UP TABLE.

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001323

Short Description:
STOP XMIT DOES NOT SEND DROP TRACK OR CHANGE TKNO

Long Description:
None

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001324

Short Description:
TRACKS MANUAL STN DOES NOT WORK

Long Description:
None

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001325

Short Description:
OPTIMIZE USE OF IMPLEMENTATION TABLE

Long Description:
PUT IMPLEMENTATION TABLE INTO SHARED MEMORY VICE MMAP TO SPEED UP ACCESS.

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001329

Short Description:
REPACKAGE THE A/B SEGMENT

Long Description:
MAKE THE LINK11 SEGMENT SOFTWARE SEGMENT INSTEAD OF A COE CHILD. MOVE EVERYTHING FROM THE ADMIN SEGMENT TO THE LINK11 SEGMENT, EXCEPT THE IMPLEMENTATION TABLES, WHICH WILL GO INTO INDIVIDUAL DATA SEGMENTS.

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001333

Short Description:
M.3/M.83 NP ID = 105, 106 AND 107

Long Description:
M.3 IDENTITIES OF 105, 106 AND 107 ARE NOT BEING PROCESSED. ALL M.83 DATA RECEIVED WHEN THESE IDENTITIES ARE PRESENT IS DISCARDED.

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001334

Short Description:
XMIT TRACK DOESN'T WORK WITH MULTIPLE LINKS RUNNING

Long Description:
WHEN GROUPS OF LINK TRACKS ARE SELECTED AND THE TADIL-A XMIT TRACKS OPTION IS SELECTED, AN ERROR MESSAGE IS DISPLAYED STATING THAT THE TRACKS ARE NOT XMIT ELIGIBLE.

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001335

Short Description:
M.811M MESSAGES NP WHEN TN = 0

Long Description:
NOT RECEIVING M.811M MESSAGES WHEN TN-2 IS ZERO.

Action:
Problem corrected

PRI: 3

GSPR Number: None

INRI Number: TDL00001341

Short Description:
ADD NTDS DIAGNOSTIC UTILITY

Long Description:
ADD CHANNEL THAT SUPPORTS NTDS LOOPBACK AND OTHER FUNCTIONALITY THAT HELPS DETERMINE IF THE NTDS HARDWARE AND DRIVER ARE CONFIGURED CORRECTLY.

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001342

Short Description:
ADD TADIL-B INFO TO THE CHANNEL STATUS WINDOW

Long Description:

Action:
Change implemented

PRI: 3

GSPR Number: None

INRI Number: TDL00001345

Short Description:
RENAME TADIL-AB INTERFACES

Long Description:
RENAME LINK11PEDO TO TADIL-A-PEDO, LINK11PIH TO TADIL-A-PIH, AND LINK11ACTIVE TO TADIL-AB.

Action:
Change implemented

PRI: 3

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Appendix B: Inventory of Software Contents

The following list identifies computer libraries and files for TADIL-A/B Version 3.0.5.1.

Link11/Integ:
VSOutput

Link11/Scripts:
.cshrc.Link11

Link11/SegDescrip:

DEINSTALL*	PostInstall*	ReleaseNotes
SegInfo	SegName	VERSION
Validated		

Link11/bin:

Link11-AswSummary*	Link11-CmdMsgs*	Link11-Config*
Link11-DialogMgr*	Link11-DiffResl*	Link11-EditChan*
Link11-EditShape*	Link11-EngageStat*	Link11-Filter*
Link11-Gridlock*	Link11-IO*	Link11-Ldbm*
Link11-MX512P*	Link11-Monitor*	Link11-NtdsTest*
Link11-POFA*	Link11-PlainText*	Link11-RecvQual*
Link11-Status*	Link11-Supervisor*	Link11-Sync*
Link11-TadilA*	Link11- TadilB*	Link11-TadilBServ*
Link11-Tracks*	Link11-UpdateRqst*	Link11-XmitDLRP*

Link11/data:

AW/	Menus/	Messages/
app-defaults/	Table.data	

Link11/data/AW:
Link11-CatThreat.rsrc

Link11/data/Menus:
ChartBar

Link11/data/Messages:

channels.act	channels.pas	channels.strip

Link11/data/app-defaults:

Link11-AswSummary	Link11-CmdMsgs	Link11-Config
Link11-DialogMgr	Link11-DiffResl	Link11-EditChan
Link11-EngageStat	Link11-Filter	Link11-Gridlock
Link11-Monitor	Link11-NtdsTest	Link11-POFA
Link11-PlainText	Link11-RecvQual	Link11-Status
Link11-Supervisor	Link11-Tracks	Link11-UpdateRqst
Link11-XmitDLRP		

Link11/lib:
libMSeries.sl*

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Appendix C: Possible Problems and Known Errors

There are no known problems for TADIL-A/B Version 3.0.5.1.

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